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# **FDI AND ECONOMIC GROWTH: EVIDENCE FROM NIGERIA**

**Adeolu B. Ayanwale**

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# FDI and Economic Growth: Evidence from Nigeria

By

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## **Abstract**

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Most countries strive to attract foreign direct investment (FDI) because of its acknowledged advantages as a tool of economic development. Africa – and Nigeria in particular – joined the rest of the world in seeking FDI as evidenced by the formation of the New Partnership for Africa's Development (NEPAD), which has the attraction of foreign investment to Africa as a major component.

This study investigated the empirical relationship between non-extractive FDI and economic growth in Nigeria and examined the determinants of FDI into the Nigerian economy. Secondary data were sourced from the Central Bank of Nigeria, International Monetary Fund and the Federal Office of Statistics. The period of analysis was 1970–2002. An augmented growth model was estimated via the ordinary least squares and the 2SLS method to ascertain the relationship between the FDI, its components and economic growth.

Results suggest that the determinants of FDI in Nigeria are market size, infrastructure development and stable macroeconomic policy. Openness to trade and available human capital, however, are not FDI inducing. FDI in Nigeria contributes positively to economic growth. Although the overall effect of FDI on economic growth may not be significant, the components of FDI do have a positive impact. The FDI in the communication sector has the highest potential to grow the economy and is in multiples of that of the oil sector. The manufacturing sector FDI negatively affects the economy, reflecting the poor business environment in the country. The level of available human capital is low and there is need for more emphasis on training to enhance its potential to contribute to economic growth.

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# 1. Introduction

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An agreed framework definition of foreign direct investment (FDI) exists in the literature. That is, FDI is an investment made to acquire a lasting management interest (normally 10% of voting stock) in a business enterprise operating in a country other than that of the investor defined according to residency (World Bank, 1996). Such investments may take the form of either “greenfield” investment (also called “mortar and brick” investment) or merger and acquisition (M&A), which entails the acquisition of existing interest rather than new investment.

In corporate governance, ownership of at least 10% of the ordinary shares or voting stock is the criterion for the existence of a direct investment relationship. Ownership of less than 10% is recorded as portfolio investment. FDI comprises not only merger and acquisition and new investment, but also reinvested earnings and loans and similar capital transfer between parent companies and their affiliates. Countries could be both host to FDI projects in their own country and a participant in investment projects in other countries. A country’s inward FDI position is made up of the hosted FDI projects, while outward FDI comprises those investment projects owned abroad.

One of the most salient features of today’s globalization drive is conscious encouragement of cross-border investments, especially by transnational corporations and firms (TNCs). Many countries and continents (especially developing) now see attracting FDI as an important element in their strategy for economic development. This is most probably because FDI is seen as an amalgamation of capital, technology, marketing and management.

Sub-Saharan Africa as a region now has to depend very much on FDI for so many reasons, some of which are amplified by Asiedu (2001). The preference for FDI stems from its acknowledged advantages (Sjoholm, 1999; Obwona, 2001, 2004). The effort by several African countries to improve their business climate stems from the desire to attract FDI. In fact, one of the pillars on which the New Partnership for Africa’s Development (NEPAD) was launched was to increase available capital to US\$64 billion through a combination of reforms, resource mobilization and a conducive environment for FDI (Funke and Nsouli, 2003).

Unfortunately, the efforts of most countries in Africa to attract FDI have been futile. This is in spite of the perceived and obvious need for FDI in the continent. The development is disturbing, sending very little hope of economic development and growth for these countries. Further, the pattern of the FDI that does exist is often skewed towards extractive industries, meaning that the differential rate of FDI inflow into sub-Saharan African countries has been adduced to be due to natural resources, although the size of the local market may also be a consideration (Morriset 2000; Asiedu, 2001).



Nigeria as a country, given her natural resource base and large market size, qualifies to be a major recipient of FDI in Africa and indeed is one of the top three leading African countries that consistently received FDI in the past decade. However, the level of FDI attracted by Nigeria is mediocre (Asiedu, 2003) compared with the resource base and potential need. Further, the empirical linkage between FDI and economic growth in Nigeria is yet unclear, despite numerous studies that have examined the influence of FDI on Nigeria's economic growth with varying outcomes (Oseghale and Amonkhienan, 1987; Odozi, 1995; Oyinlola, 1995; Adelegan, 2000; Akinlo, 2004). Most of the previous influential studies on FDI and growth in sub-Saharan Africa are multi country studies. However, recent evidence affirms that the relationship between FDI and growth may be country and period specific. Asiedu (2001) submits that the determinants of FDI in one region may not be the same for other regions. In the same vein, the determinants of FDI in countries within a region may be different from one another, and from one period to another.

The results of studies carried out on the linkage between FDI and economic growth in Nigeria are not unanimous in their submissions. A closer examination of these previous studies reveals that conscious effort was not made to take care of the fact that more than 60% of the FDI inflows into Nigeria is made into the extractive (oil) industry. Hence, these studies actually modelled the influence of natural resources on Nigeria's economic growth.

In addition, the impact of FDI on economic growth is more contentious in empirical than theoretical studies, hence the need to examine the relationship between FDI and growth in different economic dispensations. There is the further problem of endogeneity, which has not been consciously tackled in previous studies in Nigeria. FDI may have a positive impact on economic growth leading to an enlarged market size, which in turn attracts further FDI.

Finally, there is an increasing resistance to further liberalization within the economy. This limits the options available to the government to source funds for development purposes and makes the option of seeking FDI much more critical.

This study contributes to the literature by examining the relationship between FDI inflows and Nigeria's economic growth, hence addressing the country's specific dimension to the FDI growth debate. The study is different from previous studies in scope (number of years considered is longer). In addition, the effect of the major components of FDI on economic growth is examined, thereby offering the opportunity to assess the differential impact of oil FDI and non-oil FDI on Nigeria's economic growth. The study made conscious effort to address the endogeneity issue, and provide justification for the unrelenting efforts of the government to attract FDI, which are being misunderstood and resisted by the Nigerian populace.

The main objective of the study therefore is to examine the relationship between FDI inflows and economic growth in Nigeria and the policy concerns it engenders. The specific objectives are to:

- Explore the empirical relationship between FDI and GDP growth in Nigeria;
- Examine the effects of manufacturing FDI on economic growth in Nigeria; and
- Ascertain the long-run sustainability of the FDI-induced growth process.

## 2. Literature review

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**R**enewed research interest in FDI stems from the change of perspectives among policy makers from “hostility” to “conscious encouragement”, especially among developing countries. FDI had been seen as “parasitic” and retarding the development of domestic industries for export promotion until recently. However, Bende-Nabende and Ford (1998) submit that the wide externalities in respect of technology transfer, the development of human capital and the opening up of the economy to international forces, among other factors, have served to change the former image.

Caves (1996) observes that the rationale for increased efforts to attract more FDI stems from the belief that FDI has several positive effects. Among these are productivity gains, technology transfers, the introduction of new processes, managerial skills and know-how in the domestic market, employee training, international production networks, and access to markets.

Borensztein et al. (1998) see FDI as an important vehicle for the transfer of technology, contributing to growth in larger measure than domestic investment. Findlay (1978) postulates that FDI increases the rate of technical progress in the host country through a “contagion” effect from the more advanced technology, management practices, etc., used by foreign firms.

On the basis of these assertions governments have often provided special incentives to foreign firms to set up companies in their countries. Carkovic and Levine (2002) note that the economic rationale for offering special incentives to attract FDI frequently derives from the belief that foreign investment produces externalities in the form of technology transfers and spillovers.

Curiously, the empirical evidence of these benefits both at the firm level and at the national level remains ambiguous. De Gregorio (2003), while contributing to the debate on the importance of FDI, notes that FDI may allow a country to bring in technologies and knowledge that are not readily available to domestic investors, and in this way increases productivity growth throughout the economy. FDI may also bring in expertise that the country does not possess, and foreign investors may have access to global markets. In fact, he found that increasing aggregate investment by 1 percentage point of GDP increased economic growth of Latin American countries by 0.1% to 0.2% a year, but increasing FDI by the same amount increased growth by approximately 0.6% a year during the period 1950–1985, thus indicating that FDI is three times more efficient than domestic investment.

A lot of research interest has been shown on the relationship between FDI and economic growth, although most of such work is not situated in Africa. The focus of the

research work on FDI and economic growth can be broadly classified into two. First, FDI is considered to have direct impact on trade through which the growth process is assured (Markussen and Vernables, 1998). Second, FDI is assumed to augment domestic capital thereby stimulating the productivity of domestic investments (Borensztein et al., 1998; Driffield, 2001). These two arguments are in conformity with endogenous growth theories (Romer, 1990) and cross country models on industrialization (Chenery et al., 1986) in which both the quantity and quality of factors of production as well as the transformation of the production processes are ingredients in developing a competitive advantage. FDI has empirically been found to stimulate economic growth by a number of researchers (Borensztein et al., 1998; Glass and Saggi, 1999). Dees (1998) submits that FDI has been important in explaining China's economic growth, while De Mello (1997) presents a positive correlation for selected Latin American countries. Inflows of foreign capital are assumed to boost investment levels.

Blomstrom et al. (1994) report that FDI exerts a positive effect on economic growth, but that there seems to be a threshold level of income above which FDI has positive effect on economic growth and below which it does not. The explanation was that only those countries that have reached a certain income level can absorb new technologies and benefit from technology diffusion, and thus reap the extra advantages that FDI can offer. Previous works suggest human capital as one of the reasons for the differential response to FDI at different levels of income. This is because it takes a well-educated population to understand and spread the benefits of new innovations to the whole economy. Borensztein et al. (1998) also found that the interaction of FDI and human capital had important effect on economic growth, and suggest that the differences in the technological absorptive ability may explain the variation in growth effects of FDI across countries. They suggest further that countries may need a minimum threshold stock of human capital in order to experience positive effects of FDI.

Balasubramanyan et al. (1996) report positive interaction between human capital and FDI. They had earlier found significant results supporting the assumption that FDI is more important for economic growth in export-promoting than import-substituting countries. This implies that the impact of FDI varies across countries and that trade policy can affect the role of FDI in economic growth. In summary, UNCTAD (1999) submits that FDI has either a positive or negative impact on output depending on the variables that are entered alongside it in the test equation. These variables include the initial per capita GDP, education attainment, domestic investment ratio, political instability, terms of trade, black market exchange rate premiums, and the state of financial development. Examining other variables that could explain the interaction between FDI and growth, Olofsdotter (1998) submits that the beneficiary effects of FDI are stronger in those countries with a higher level of institutional capability. He therefore emphasized the importance of bureaucratic efficiency in enabling FDI effects.

The neoclassical economists argue that FDI influences economic growth by increasing the amount of capital per person. However, because of diminishing returns to capital, it does not influence long-run economic growth. Bengos and Sanchez-Robles (2003) assert that even though FDI is positively correlated with economic growth, host countries require minimum human capital, economic stability and liberalized markets in order to benefit from long-term FDI inflows. Interestingly, Bende-Nabende et al. (2002) found

that direct long-term impact of FDI on output is significant and positive for comparatively economically less advanced Philippines and Thailand, but negative in the more economically advanced Japan and Taiwan. Hence, the level of economic development may not be the main enabling factor in FDI growth nexus. On the other hand, the endogenous school of thought opines that FDI also influences long-run variables such as research and development (R&D) and human capital (Romer, 1986; Lucas, 1988).

FDI could be beneficial in the short term but not in the long term. Durham (2004), for example, failed to establish a positive relationship between FDI and growth, but instead suggests that the effects of FDI are contingent on the "absorptive capability" of host countries. Obwona (2001) notes in his study of the determinants of FDI and their impact on growth in Uganda that macroeconomic and political stability and policy consistency are important parameters determining the flow of FDI into Uganda and that FDI affects growth positively but insignificantly. Ekpo (1995) reports that political regime, real income per capita, rate of inflation, world interest rate, credit rating and debt service explain the variance of FDI in Nigeria. For non-oil FDI, however, Nigeria's credit rating is very important in drawing the needed FDI into the country.

Furthermore, spillover effects could be observed in the labour markets through learning and its impact on the productivity of domestic investment (Sjoholm, 1999). Sjoholm suggests that through technology transfer to their affiliates and technological spillovers to unaffiliated firms in host economy, transnational corporations (TNCs) can speed up development of new intermediate product varieties, raise the quality of the product, facilitate international collaboration on R&D, and introduce new forms of human capital.

FDI also contributes to economic growth via technology transfer. TNCs can transfer technology either directly (internally) to their foreign owned enterprises (FOE) or indirectly (externally) to domestically owned and controlled firms in the host country (Blomstrom et al., 2000; UNCTAD, 2000). Spillovers of advanced technology from foreign owned enterprises to domestically owned enterprises can take any of four ways: vertical linkages between affiliates and domestic suppliers and consumers; horizontal linkages between the affiliates and firms in the same industry in the host country (Lim, 2001; Smarzynska, 2002); labour turnover from affiliates to domestic firms; and internationalization of R&D (Hanson, 2001; Blomstrom and Kokko, 1998). The pace of technological change in the economy as a whole will depend on the innovative and social capabilities of the host country, together with the absorptive capacity of other enterprises in the country (Carkovic and Levine, 2002).

Other than the capital augmenting element, some economists see FDI as having a direct impact on trade in goods and services (Markussen and Vernables, 1998). Trade theory expects FDI inflows to result in improved competitiveness of host countries' exports (Blomstrom and Kokko, 1998).

TNCs can have a negative impact on the direct transfer of technology to the FOEs, however, and thereby reduce the spillover from FDI in the host country in several ways. They can provide their affiliate with too few or the wrong kind of technological capabilities, or even limit access to the technology of the parent company. The transfer of technology can be prevented if it is not consistent with the TNC's profit maximizing objective and if the cost of preventing the transfer is low. Consequently, the production

of its affiliates could be restricted to low-level activities and the scope for technical change and technological learning within the affiliate reduced. This would be by limiting downstream producers to low value intermediate products, and in some cases "crowding out" local producers to eliminate competition. They may also limit exports to competitors and confine production to the needs of the TNCs. These may ultimately result in a decline in the overall growth rate of the "host country and worsened balance of payment situation" (Blomstrom and Kokko, 1998).

### **FDI's impact on growth remains ambiguous**

The consensus in the literature seems to be that FDI increases growth through productivity and efficiency gains by local firms. The empirical evidence is not unanimous, however. Available evidence for developed countries seems to support the idea that the productivity of domestic firms is positively related to the presence of foreign firms (Globeram, 1979; Imbriani and Reganeti, 1997). The results for developing countries are not so clear, with some finding positive spillovers (Blomstrom, 1986; Kokko, 1994; Blomstrom and Sjöholm, 1999) and others such as Aitken et al. (1997) reporting limited evidence. Still others find no evidence of positive short-run spillover from foreign firms. Some of the reasons adduced for these mixed results are that the envisaged forward and backward linkages may not necessarily be there (Aitken et al. 1997) and that arguments of TNCs encouraging increased productivity due to competition may not be true in practice Aitken et al. (1999). Other reasons include the fact that TNCs tend to locate in high productivity industries and, therefore, could force less productive firms to exit (Smarzynska, 2002). Cobham (2001) also postulates the crowding out of domestic firms and possible contraction in total industry size and/or employment. However, crowding out is a more rare event and the benefit of FDI tends to be prevalent (Cotton and Ramachandran, 2001). Further, the role of FDI in export promotion remains controversial and depends crucially on the motive for such investment (World Bank, 1998). The consensus in the literature appears to be that FDI spillovers depend on the host country's capacity to absorb the foreign technology and the type of investment climate (Obwona, 2004).

The review shows that the debate on the impact of FDI on economic growth is far from being conclusive. The role of FDI seems to be country specific, and can be positive, negative or insignificant, depending on the economic, institutional and technological conditions in the recipient countries.

Most studies on FDI and growth are cross-country evidences, while the role of FDI in economic growth can be country specific. Further, only a few of the country specific studies actually took conscious note of the endogenous nature of the relationship between FDI and growth in their analyses, thereby raising some questions on the robustness of their findings. Finally, the relationship between FDI and growth is conditional on the macroeconomic dispensation the country in question is passing through. In fact, Zhang (2001) asserts that "the extent to which FDI contributes to growth depends on the economic and social condition or in short, the quality of the environment of the recipient country". In essence, the impact FDI has on the growth of any economy may be country and period specific, and as such there is the need for country specific studies.



## Impact of FDI on Economic Growth in Nigeria

There have been some studies on investment and growth in Nigeria with varying results and submissions. For example, Odozi (1995) reports on the factors affecting FDI flow into Nigeria in both the pre and post structural adjustment programme (SAP) eras and found that the macro policies in place before the SAP were discouraging foreign investors. This policy environment led to the proliferation and growth of parallel markets and sustained capital flight.

Ogiogio (1995) reports negative contributions of public investment to GDP growth in Nigeria for reasons of distortions. Aluko (1961), Brown (1962) and Obinna (1983) report positive linkages between FDI and economic growth in Nigeria. Endozien (1968) discusses the linkage effects of FDI on the Nigerian economy and submits that these have not been considerable and that the broad linkage effects were lower than the Chenery–Watanabe average (Chenery and Watanabe, 1958). Oseghale and Amonkhienan (1987) found that FDI is positively associated with GDP, concluding that greater inflow of FDI will spell a better economic performance for the country.

Ariyo (1998) studied the investment trend and its impact on Nigeria's economic growth over the years. He found that only private domestic investment consistently contributed to raising GDP growth rates during the period considered (1970–1995). Furthermore, there is no reliable evidence that all the investment variables included in his analysis have any perceptible influence on economic growth. He therefore suggests the need for an institutional rearrangement that recognizes and protects the interest of major partners in the development of the economy.

Examining the contributions of foreign capital to the prosperity or poverty of LDCs, Oyinlola (1995) conceptualized foreign capital to include foreign loans, direct foreign investments and export earnings. Using Chenery and Stout's two-gap model (Chenery and Stout, 1966), he concluded that FDI has a negative effect on economic development in Nigeria. Further, on the basis of time series data, Ekpo (1995) reports that political regime, real income per capita, rate of inflation, world interest rate, credit rating and debt service were the key factors explaining the variability of FDI into Nigeria.

Adelegan (2000) explored the seemingly unrelated regression model to examine the impact of FDI on economic growth in Nigeria and found out that FDI is pro-consumption and pro-import and negatively related to gross domestic investment. Akinlo (2004) found that foreign capital has a small and not statistically significant effect on economic growth in Nigeria.

However, these studies did not control for the fact that most of the FDI was concentrated in the extractive industry. In other words, it could be put that these works assessed the impact of investment in extractive industry (oil and natural resources) on Nigeria's economic growth.

On firm level productivity spillover, Ayanwale and Bamire (2001) assess the influence of FDI on firm level productivity in Nigeria and report a positive spillover of foreign firms on domestic firm's productivity.

Much of the other empirical work on FDI in Nigeria centred on examination of its nature, determinants and potentials. For example, Odozi (1995) notes that foreign investment in Nigeria was made up of mostly "greenfield" investment, that is, it is

mostly utilized for the establishment of new enterprises and some through the existing enterprises. Aremu (1997) categorized the various types of foreign investment in Nigeria into five: wholly foreign owned; joint ventures; special contract arrangements; technology management and marketing arrangements; and subcontract co-production and specialization.

In his study of the determinants of FDI in Nigeria, Anyanwu (1998) identified change in domestic investment, change in domestic output or market size, indigenization policy, and change in openness of the economy as major determinants of FDI. He further noted that the abrogation of the indigenization policy in 1995 encouraged FDI inflow into Nigeria and that effort must be made to raise the nation's economic growth so as to be able to attract more FDI.

Jerome and Ogunkola (2004) assessed the magnitude, direction and prospects of FDI in Nigeria. They noted that while the FDI regime in Nigeria was generally improving, some serious deficiencies remain. These deficiencies are mainly in the area of the corporate environment (such as corporate law, bankruptcy, labour law, etc.) and institutional uncertainty, as well as the rule of law. The establishment and the activities of the Economic and Financial Crimes Commission, the Independent Corrupt Practices Commission, and the Nigerian Investment Promotion Commission are efforts to improve the corporate environment and uphold the rule of law. Has there been any discernible change in the relationship between FDI and economic growth in Nigeria in spite of these policy interventions? This is the focus of this study.

### 3. Some Stylized Facts about FDI in Nigeria

It is now widely acknowledged that foreign direct investment (FDI) is an important aspect of the recent wave of globalization. UNCTAD (2001) notes that FDI in the world rose from US\$57 billion in 1982 to US\$1,271 billion in 2000. Even so, only a few countries have been successful in attracting significant FDI flows. Indeed, Africa as a whole – sub-Saharan Africa (SSA) in particular – has not particularly benefited from the FDI boom. For most of the time since 1970, FDI inflows into Africa have increased only modestly, from an annual average of about US\$1.9 billion in 1983–87 to US\$3.1 billion in 1998–1992 and US\$4.6 billion in 1991–1997.

Although UNCTAD's *World Investment Report 2004*, reported that Africa's outlook for FDI is promising, the expected surge is yet to be manifest. FDI is still concentrated in only a few countries for many reasons, ranging from negative image of the region, to poor infrastructure, corruption and foreign exchange shortages, an unfriendly macroeconomic policy environment, among others.

Nigeria is one of the few countries that have consistently benefited from the FDI inflow to Africa as reflected in Table 1. Nigeria's share of FDI inflow to Africa averaged around 10%, from 24.19% in 1990 to a low level of 5.88% in 2001 up to 11.65% in 2002. UNCTAD (2003) showed Nigeria as the continent's second top FDI recipient after Angola in 2001 and 2002.

**Table 1: Nigeria: Net foreign direct investment inflow (US\$ million)**

Year	Africa	Nigeria	Per cent of Africa
1980	392	-188.52	
1990	2430	588	24.19
1995	5119	1079	21.07
1997	10667	1539	14.43
1998	8928	1051	11.77
1999	12231	1005	8.22
2000	8489	930	10.96
2001	18769	1104	5.88
2002	10998	1281	11.65
2003	15033	1200	7.98

Source: UNCTAD Foreign Direct Investment Database online.

The details of FDI inflow into Nigeria for the period 1970 to 2002 are shown in Table 2. The nominal FDI inflow ranged from ₦128.6 million in 1970 to ₦434.1 million in 1985 and ₦115.952 billion in 2000. This was an increase in real terms from the



decline of the 1980s. FDI forms a small percentage of the nation's gross domestic product (GDP), however, making up 2.47% in 1970, -0.81% in 1980, 6.24% in 1989 (the highest) and 3.93% in 2002. On the whole, it formed about 2.1% of the GDP over the whole period of analysis. Prior to the early 1970s, foreign investment played a major role in the Nigerian economy. Until 1972, for example, much of the non-agricultural sector was controlled by large foreign owned trading companies that had a monopoly on the distribution of imported goods. Between 1963 and 1972 an average of 65% of total capital was in foreign hands (Jerome and Ogunkola, 2004).

**Table 2: Nigeria: Foreign direct investment, 1970–2002**

Year	Nominal FDI N million	FDI as percentage of GDP	Real FDI N million
1970	128.6	2.47	1,190.70
1971	142.8	2.17	1,142.40
1972	297.8	4.13	2,308.50
1973	186.3	1.69	1,369.90
1974	181.6	0.99	1,179.20
1975	253.0	1.21	1,222.20
1976	212.5	0.79	830.07
1977	245.5	0.77	829.39
1978	134.4	0.38	389.39
1979	184.3	0.43	478.70
1980	-404.1	-0.81	-955.32
1981	334.7	0.66	653.71
1982	290.0	0.56	526.32
1983	264.3	0.46	389.25
1984	360.4	0.57	380.17
1985	434.1	0.60	434.10
1986	735.8	1.02	698.10
1987	2,452.8	2.29	2,112.66
1988	1,718.2	1.20	948.23
1989	13,877.4	6.24	5,088.89
1990	4,686.0	1.81	1,598.23
1991	6,916.1	2.15	2,090.09
1992	14,463.1	2.65	3,023.22
1993	29,660.3	4.28	3,944.71
1994	22,229.2	2.43	1,882.71
1995	75,940.6	3.87	3,721.85
1996	1,112,995.0	4.06	42,189.27
1997	110,452.7	3.89	3,857.62
1998	80,750.4	2.92	2,564.16
1999	92,792.5	2.91	2,763.66
2000	115,952.2	2.39	2,955.09
2001	132,433.7	2.39	3,102.90
2002	225,036.5	3.93	4,368.37

Source: CBN *Statistical Bulletin* (various years).

Because successive Nigeria governments have viewed FDI as a vehicle for political and economic domination, the thrust of government's policy through the Nigeria Enterprise Promotion Decree (NEPD) (indigenization policy) was to regulate rather

than promote FDI. The NEPD was promulgated in 1972 to limit foreign equity participation in manufacturing and commercial sectors to a maximum of 60%. In 1977 a second indigenization decree was promulgated to further limit foreign equity participation in Nigeria business to 40%. Hence, between 1972 and 1995 official policy toward FDI was restrictive. The regulatory environment discouraged foreign participation resulting in an average flow of only 0.79% of GDP from 1973 to 1988.

The adoption of the structural adjustment programme in 1986 initiated the process of termination of the hostile policies towards FDI. A new industrial policy was introduced in 1989 with the debt to equity conversion scheme as a component of portfolio investment. The Industrial Development Coordinating Committee (IDCC) was established in 1988 as a one-step agency for facilitating and attracting foreign investment flow. This was followed in 1995 by the repeal of the Nigeria Enterprises Promotion Decree and its replacement with the Nigerian Investment Promotion Commission Decree 16 of 1995. The NIPC absorbed and replaced the IDCC and provided for a foreign investor to set up a business in Nigerian with 100% ownership. Upon provision of relevant documents, NIPC will approve the application within 14 days (as opposed to four weeks under IDCC) or advise the applicant otherwise. Furthermore, in consonance with the NIPC decree, the Foreign Exchange (Monitoring and Miscellaneous Provision) Decree 17 of 1995 was promulgated to enable foreigners to invest in enterprise in Nigeria or in money-market instruments with foreign capital that is legally brought into the country. The decree permits free regulation of dividends accruing from such investment or of capital in event of sale or liquidation.

An export processing zone (EPZ) scheme adopted in 1999 allows interested persons to set up industries and businesses within demarcated zones, particularly with the objective of exporting the goods and services manufactured or produced within the zone.

In summary, the policies embarked on by the Nigerian government to attract foreign investors as a result of the introduction of the SAP could be categorized into five: the establishment of the Industrial Development Coordinating Committee (IDCC), investment incentive strategy, non-oil export stimulation and expansion, the privatization and commercialization programme, and the shift in macroeconomic management in favour of industrialization, deregulation and market-based arrangements.

## Sectoral analysis of FDI inflow in Nigeria

Although there has been some diversification into the manufacturing sector in recent years, FDI in Nigeria has traditionally been concentrated in the extractive industries. Table 3 shows the sectoral composition of FDI in Nigeria from 1970–2001. Data from the table reveal a diminishing attention to the mining and quarrying sector, from about 51% in 1970–1974 to 30.7% in 2000/01.

On the average, the stock of FDI in manufacturing over the period of analysis compares favourably with the mining and quarrying sector, with an average value of 32%. The stock of FDI in trading and business services rose from 16.9% in 1970–1974 to 32.6% in 1985–1989, before nosediving to 8.3% in 1990–1994. However, it subsequently rose to 25.8% in 2000/01.

**Table 3: Sectoral composition of FDI in Nigeria, 1970–2001 percentage**

Year	Mining & quarrying	Manu- facturing	Agri- culture	Transport & commu- nication	Building & cons- truction	Trading & business	Miscel- laneous services
1970-1974	51.2	25.1	0.9	1.0	2.2	16.9	2.7
1975 – 1979	30.8	32.4	2.5	1.4	6.4	20.4	6.1
1980 – 1984	14.1	38.3	2.6	1.4	7.9	29.2	6.5
1985 – 1989	19.3	35.3	1.4	1.1	5.1	32.6	5.2
1990 – 1994	22.9	43.7	2.3	1.7	5.7	8.3	15.4
1995 – 1999	43.5	23.6	0.9	0.4	1.8	4.5	25.3
2000 – 2001	30.7	18.9	0.6	0.4	2.0	25.8	21.5
1970 – 2001	30.3	32.2	1.7	1.1	4.7	19.1	10.9

Source: CBN *Statistical Bulletin* (various issues).

Agriculture, transport and communications, and building and construction remained the least attractive hosts of FDI in Nigeria. If the report from the privatization programme (CBN 2004: 72) is anything to go by, however, the transport and communication sector seem to have succeeded in attracting the interest of foreign investors, especially the telecommunication sector. Nigeria is currently described as the fastest growing mobile phone market in the world. Since 2001, when the mobile telecommunication operators were licensed, the rate of subscription has gone up and does not show any sign of abating; in fact, MTN (Nigeria) – the leading mobile phone operator – has acquired another line having oversubscribed the original line. The four operators – MTN, V-mobile, Glo and M-tel – are currently engaged in neck and neck competition that has forced the rates down and in the process fostered consumer satisfaction. The effect of this development is yet to be translated to the rest of the economy, however.

Table 4 presents some basic statistics on FDI in Nigeria. The period of analysis is broken into two, separated by the official change of attitude manifested in the establishment of the Industrial Development Coordination Committee in 1988. The figures in the table thus present the analysis of FDI inflow before and after the establishment of the Committee.

The mean figures for the FDI inflow after the policy shift are in all cases greater than before, sometimes in multiples. Nominal FDI after the shift was about 339 times more than before, while the real FDI was seven times more than the value before. However, the mean figure for manufacturing FDI and mining and quarrying FDI dropped after the policy shift, suggesting a change in sectoral allocation of FDI inflow.

De Gregorio (2003) notes that one of the features of FDI is that it tends to be relatively stable. In other words, when a crisis erupts, FDI cannot flee the country as easily as more liquid forms of capital such as portfolio flows and debt. A simple way to illustrate this point is to examine the persistence of different flows by estimating the coefficient of variation and the autocorrelation coefficient for a series of annual flows. The coefficient of variation measures the volatility or otherwise of a variable.

The coefficient of variation for the nominal FDI is 315.96%, which is rather low when compared with figures such as 23,366% for Korea, 3,719% for Indonesia, 1,123% for Argentina, 1,110% for the United States and 1,043% for France, as computed by Claessens et al. (1995) for the period 1973.1 to 1992.1. The figures for the other variables were even lower, thus suggesting relatively less volatile nature.

Table 4: Basic statistics on FDI in Nigeria, 1970–2002

Statistics	FDI percentage				Nominal FDI				Real FDI			
	O	B4	After	O	B4	After	O	B4	O	B4	After	After
Mean	2.048	1.139	3.283	62010.2	429.10	145584.7	2969.75	847.78	2969.75	847.78	6329.532	
Std. dev	1.532	1.059	1.172	195930.7	631.3	285360.4	7401.52	700.81	7401.52	700.81	11336.28	
Max	6.238	4.131	6.238	1112995	2402.8	1112995	42189.27	2308.50	42189.27	2308.50	42189.27	
Min.	-0.814	-0.814	1.817	-404.1	-404.1	4686.0	-935.32	-955.32	-935.32	-955.32	1598.23	
Skewness	0.589	1.089	1.042	4.897	2.206	3.062	5.021	-0.146	5.021	-0.146	2.973	
Kurtosis	3.032	4.742	3.780	26.703	7.407	10.965	27.162	4.377	27.162	4.377	9.941	
Coeff. of var.	74.80	92.97	35.69	315.96	147.12	196.09	249.23	82.66	249.23	82.66	179.10	
ADF level	1.598	1.704	4.548*	3.283*	0.553	2.498	3.433*	1.534	3.433*	1.534	2.501	
1st diff	5.793*	4.278*	3.828**	6.213*	2.349	3.975**	6.194*	3.922*	6.194*	3.922*	3.718**	
PP level	3.061*	2.285	5.863*	4.738*	1.079	3.41**	4.866*	3.921*	4.866*	3.921*	3.348**	
1st diff	11.399*	6.077*	8.349*	11.275*	5.308*	6.548*	11.160*	6.561*	11.160*	6.561*	6.111*	

Statistics	FDI Man				FDI Tracom				FDI MinQary			
	O	B4	After	O	B4	After	O	B4	O	B4	After	After
Mean	2238.135	2822.884	1444.548	80.672	107.715	43.971	2411.94	2962.674	2411.94	2962.674	1664.515	
Std. dev	884.40	562.026	556.772	43.383	29.691	29.880	1798.605	2082.65	1798.605	2082.65	955.216	
Max	3662.03	3662.03	2626.896	161.159	161.159	112.783	6803.68	6803.68	6803.68	6803.68	3682.258	
Min.	829.29	2007.174	829.291	18.368	63.28	18.368	244.786	742.35	244.786	742.35	244.786	
Skewness	-0.031	0.126	0.809	0.078	0.325	1.075	1.058	0.579	1.058	0.579	0.240	
Kurtosis	1.875	1.649	2.380	1.985	2.059	2.959	3.15	1.91	3.15	1.91	2.806	
Coeff. of var.	39.515	19.90	38.54	53.77	27.56	67.95	14.57	70.29	14.57	70.29	57.38	
ADF level	1.068	2.096	0.694	1.489	2.466	1.538	1.987	1.297	1.987	1.297	1.883	
1st diff	4.683*	3.226**	3.088***	5.606*	4.285*	2.853***	3.769*	2.828**	3.769*	2.828**	2.316	
PP level	0.849	2.461	0.767	1.591	2.319	1.575	1.716	1.106	1.716	1.106	2.099	
1st diff	6.189*	3.935*	4.235*	5.864*	4.094*	3.760**	5.904*	4.112*	5.904*	4.112*	4.023*	

Note: \*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

O = Overall period 1970–2002.

B4 = Period before the policy shift 1970–1988.

After = Period after the policy shift 1989–2002.

Source: CBN Statistical Bulletin (various years).

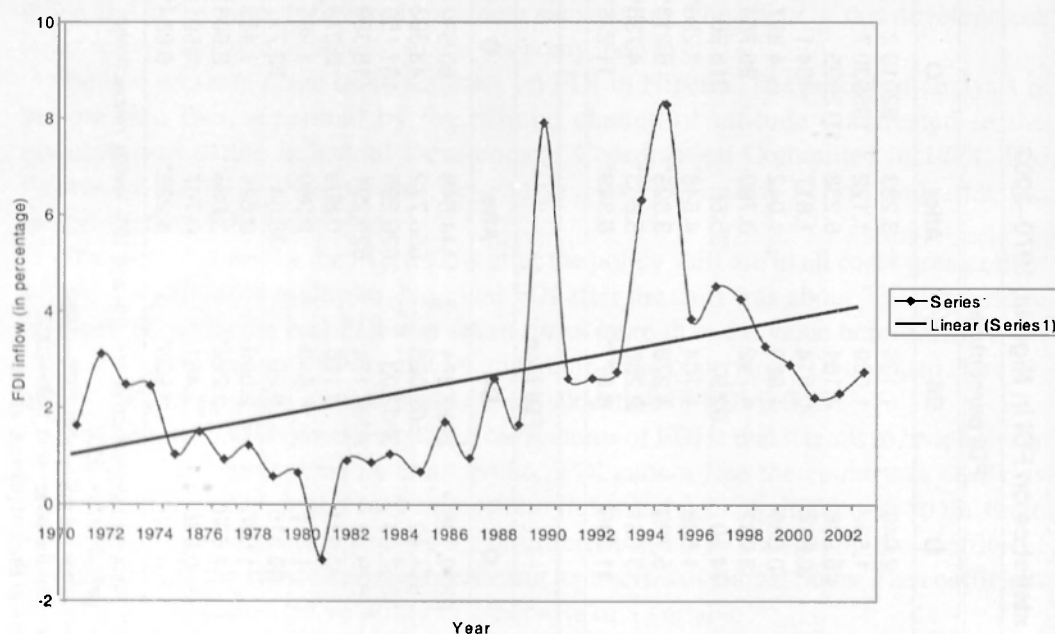
The more recent way of estimating persistence is to examine the unit root system; any series that is not stationary about the mean suggests persistence. The figures in the table suggest that the variables are cointegrated to the order of one, hence the variables could be persistent. This suggests that if Nigeria succeeds in attracting FDI inflows, the inflows would continue; on the other hand, should FDI stop flowing in, there will be a long wait before the drought is over.

The results in the table corroborate the results of Anyanwu (1998), who found a high positive autocorrelation for FDI in Nigeria, suggesting persistence.

## Graphical analysis of FDI inflow to Nigeria

Figure 1 illustrates the trend of FDI inflows into Nigeria from 1970 to 2002 as a percentage of GDP. The figure clearly shows the downward spiral of the FDI inflow in the aftermath of the official restrictive policy manifested in the Nigeria Enterprises Promotion Decrees of 1972 and 1977. These decrees ensured that the FDI inflow was kept to the barest minimum of below 2 percentage points of the GDP. The crash of world oil prices in 1980 caused a massive divestment from the nation and the low level of inflow obtained until 1986. Other government legislation such as the Companies Tax Act 1961, Exchange Control Act 1962 and Immigration Act 1963 had also served to discourage FDI during the early period.

Figure 1: FDI inflow into Nigeria, 1970–2002



Source: Data Analysis 2005.

The adoption of the macroeconomic programme embedded in the SAP started the process of gradual increase in the FDI inflow. As noted earlier, among the details of the SAP policy measures were the inauguration of the Industrial Development Coordination Committee (IDCC), the Companies and Allied Matters Decree 1990, financial liberalization and the debt-equity swap programmes. These steps were targeted at encouraging FDI inflow. The programmes were largely successful in that aim, but the inflow was not sustainable. The period 1990–1993 witnessed a drop in the rate of inflow largely due to a protracted political impasse that disrupted productive activities and created a regime of uncertainty, which subsequently encouraged capital flight.

In 1995, in order to liberalize the investment climate in the country, the government promulgated the Nigerian Investment Promotion Commission (NIPC). The commission took over from the IDCC as a one-step agency to facilitate and encourage foreign investors into the country. The aftermath of the promulgation of the commission was a momentous increase in the FDI inflow into the country especially into the non-oil sectors. Additional policy measures included guided deregulation, Foreign Exchange (Monitoring and Miscellaneous Provisions) Decree 1999, and the establishment of export processing zones (EPZ), all aimed at improving the business environment of the country.

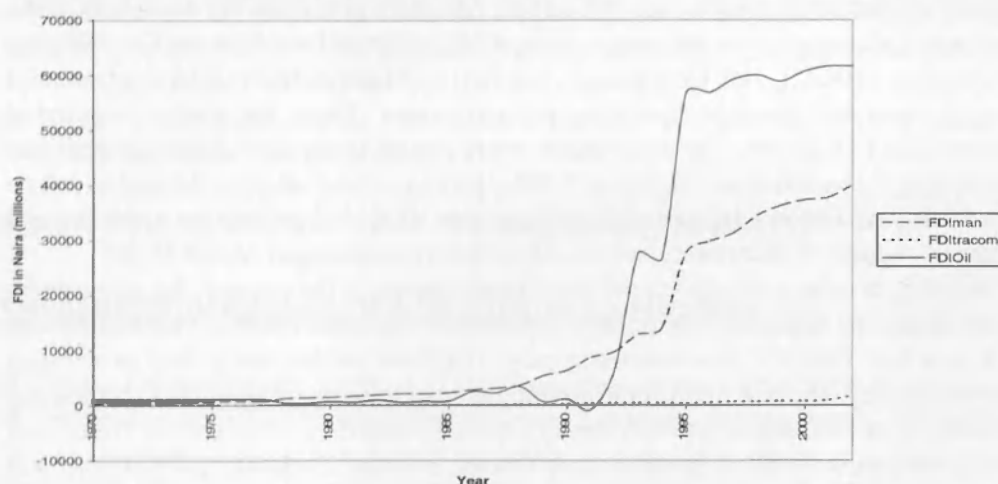
The current sustained upward trend in the FDI inflow is due largely to the privatization and commercialization exercise of the government whereby public enterprises are put up for sale to the investing public. This exercise has attracted considerable inflows since 1999. For example, the deregulation of the telecommunication sector by granting licences for global system for mobile communications (GSM) operators in 1999 caused the FDI in the telecommunications sector to increase from a mere US\$50 million at the end of 1999 to about US\$2.1 billion by the end of 2002. The NIPC attributed over 75% of this increase to mobile telephone network investors. Overall, the linear trend line shows an increasing trend of FDI inflows during the period under consideration.

The breakdown of FDI inflow into the various sectors during the period under consideration is shown in Figure 2. As expected, inflow of FDI into the oil sector held the dominant position in the early 1970s. The low level of inflow into all the sectors, however, took an upward turn in 1986 following the adoption of the SAP.

The story of the manufacturing FDI is similar to that of the oil industry in that the FDI inflow took an upward trend in 1986 as a result of the adoption of the SAP. The increase in manufacturing FDI actually started before 1986. This may be traced to the government's new industrial policy of 1981, which was policy step to encourage manufacturers. Further efforts by the government to create a favourable business environment through the provision of infrastructure facilities, restriction of imports, and the privatization and commercialization programme encouraged FDI inflow into the sector. As with the oil sector, the inflow into manufacturing witnessed a dramatic upsurge as a result of the NIPC decree of 1995. The subsequent sustained increase in FDI inflow may be attributed to further commercialization and privatization efforts of the government and the creation of the EPZs.

The hostile macroeconomic environment that encouraged capital flight, coupled with the ineffective operations of the refineries, which occasioned large reliance on imported refined petroleum products, were responsible for the downward spiral of the oil FDI in the early 1990s. The process of privatizing and commercializing public enterprises by



**Figure 2: Components of FDI inflow to Nigeria**

Source: Data Analysis 2005.

which the Nigerian National Petroleum Corporation and its subsidiaries were put up for sale was responsible for the sharp upward inflow into the oil sector between 1993 and 1995. The upward trend was pushed further by the promulgation of the NIPC decree in 1995. Further, deregulation of the downstream sector of the oil industry opened up the sector to more FDI inflow after the inception of the civilian administration in 1999.

The inflow into the communications sector remained very low until 1995 when the NIPC decree came into operation. As part of the privatization/deregulation exercise the Federal Government established the Nigerian Communications Commission in 1993 to encourage private sector participation and issue licences to private companies wishing to undertake telecommunication services. In 1999, the government began the complete deregulation of the telecommunication sector by licensing GSM service providers.

## 4. Theoretical framework

That FDI is positively correlated with economic growth is situated in growth theory that emphasizes the role of improved technology, efficiency and productivity in promoting growth (Lim, 2001). The potential contribution of FDI to growth depends strictly on the circumstances in recipient countries. Certain host country conditions are necessary to facilitate the spillover effects.

The effect of FDI on economic growth is analysed in the standard growth accounting framework. To begin with, the capital stock is assumed to consist of two components: domestic and foreign owned capital stock. So,

$$K_t = K_{dt} + K_{ft}$$

We adopt an augmented Solow production function (Solow, 1956) that makes output a function of stocks of capital, labour, human capital and productivity (see Mankiw et al., 1992). However, we specify domestic and foreign owned capital stock separately in a Cobb–Douglas production function (Cobb and Douglas, 1928).

$$Y_{it} = A_{it} K_{dit}^\alpha K_{fit}^\lambda L_{it}^\beta H_{it}^\gamma \quad (1)$$

where  $Y$  is the flow of output,  $K_{dt}$   $K_{ft}$  represent the domestic and foreign owned capital stocks, respectively,  $L$  is the labour,  $H$  is the human skills capital stock, and  $A$  is the total factor productivity, which explains the output growth that is not accounted for by the growth in factors of production specified.

Taking logs and differentiating Equation 1 with respect to time, we obtain the familiar growth equation:

$$y_{it} = a_{it} + \alpha k_{dit} + \lambda k_{fit} + \beta l_{it} + \gamma h_{it} \quad (2)$$

where lower case letters represent the growth rates of output, domestic capital stock, foreign capital stock, and labour and human capital, and  $\alpha$ ,  $\lambda$ ,  $\beta$  and  $\gamma$  represent the elasticity of output, domestic capital stock, foreign capital stock, labour and human skill capital, respectively.

In a world of perfect competition and constant returns to scale, these elasticity coefficients can be interpreted as respective factor shares in total output. Equation 2 is a



fundamental growth accounting equation, which decomposes the growth rate of output into growth rate of total factor productivity plus a weighted sum of the growth rates of capital stocks, human capital stock and the growth rate of labour. Theoretically,  $\alpha$ ,  $\beta$  and  $\gamma$  are expected to be positive while the sign of  $\lambda$  would depend on the relative strength of competition and linkage effects and other externalities that FDI generates in the development process as discussed in previous sections.

Following the established practice in the literature,  $K_d$  and  $K_f$  are proxied by domestic investment to GDP ratio ( $I_d$ ) and FDI to GDP ratio ( $I_f$ ), respectively in view of problems associated with measurement of capital stock. The use of rate of investment is hinged on the assumption of a steady state situation or a linearization around a steady state.

The final form of Equation 2 therefore is

$$y_{it} = a_i + \alpha I_{dit} + \lambda I_{fit} + \gamma h_{it} + \varepsilon_{it} \quad (3)$$

where  $\varepsilon_{it}$  is an error term.

Equation 3 therefore is the basis for the empirical model estimation in the next section.

## 5. Methodology and analytical framework

The two main categories of investment in a foreign country are “market-seeking” and “non market-seeking”; these are motivated by characteristics of the host country. Market-seeking investments aim at serving domestic markets. In other words, goods produced in host markets are sold in those markets. Hence, the FDI can influence growth via the nature of the domestic demand such as large markets and high income levels of the host country. For non market-seeking FDI, the aim is to sell the goods produced in the host economy on markets abroad. Therefore, this type of investment will be more beneficial to the host country through the trade nexus – in other words, how easy it is to export the products and how competitive the products are in the global market. Essentially, FDI will boost economic growth through increase in productivity of capital.

### Description of variables

Since Nigeria is a beneficiary of both types of FDI, the variables that are important for both types of FDI will likely influence the nation’s economic growth. We thus include in the model such independent variables that are germane to economic growth subject to availability of data.

The dependent variable used is the GDP per capita (in log form), which is obtained as a ratio of real GDP to the population. The figures for this were obtained from the statistical bulletin of the Central Bank of Nigeria. This is following after Borensztein et al. (1998).

The independent variables included in the model are:

- 1) *Return on investment on capital.* FDI will get to countries that pay a higher return on capital. We assume that a higher return on capital is indicative of a higher level of productivity and hence a higher potential to grow the economy. Following Ekpo (1995), we use the return on investment in the rest of the world proxied by the long-term US interest rate. This is because the Nigerian capital market was undeveloped for most of the period under study. The return on investment in the rest of the world serves as opportunity cost for potential investors in Nigeria, who can use the rate to compare with what obtains in other parts of the world where there are available options. We assume a direct relationship between income per capita and the return on capital. Asiedu (2001) found a positive relationship between the return on capital and the FDI, suggesting that higher GDP per capita implies a brighter prospect for FDI in the host economy.

- 2) *Infrastructure development*: Good infrastructure facilitates production, reduces operating costs and thereby promotes FDI (Wheeler and Mody, 1992). Infrastructure increases the productivity of investment and thereby enhances economic growth. In the literature, the number of telephones per 1,000 population is often used to measure infrastructure development. The defects of this measure are that it does not take into consideration the rise in the number of mobile phones and that it measures only the availability of the facility and not reliability. Other measures used in the literature include electric power transmission and distribution losses and gross fixed capital formation. Given the availability of data we used electric power consumption as a proxy for this variable. The variable is measured as per capita electricity power consumption. This measure takes care of availability and we expect a direct relationship between this measure and economic growth.
- 3) *Openness of the host economy to trade*: The ratio of trade (imports and exports) to GDP is used to capture this variable as is standard in the literature. In the growth accounting literature exports have been considered as an explanatory variable. FDI inflows are expected to result in improved competitiveness of host countries exports. As exports and investment increase, they will have a multiplier effect on GDP. Increased exports and investments may also generate foreign exchange that can be used to import capital goods. Further, if the additional investment embodies neutral/labour intensive techniques, employment will rise. We expect a direct relationship between this variable and economic growth.
- 4) *Political risk*: It is widely acknowledged that when a country is politically unstable its economic growth is hindered. Political risk is usually measured by the probability of a change of government, as well as political violence as measured by the sum of frequency of political assassinations, violent riots and politically motivated strikes. Asiedu (2001) used average number of assassinations and revolutions to measure political instability. Easterly and Levine (1997) and Anyanwu (1998) used the number of coups d'état a country suffers to measure political instability. We used the number of coups d'état in this study given the availability of data. We expect an indirect relationship between the measure and economic growth.
- 5) *Government size*: This is measured as the ratio of government consumption to GDP. It is expected to bear a direct relationship to economic growth. This is because a higher level of government consumption should translate into provision of more social capital that should encourage production and growth.
- 6) *Human capital*: The importance of education to economic growth is proxied by the ratio of secondary and tertiary institution enrolment in the population. Barro and Lee (1994) and Akinlo (2004) included this variable in their growth equation and found a direct relationship. Borensztein et al. (1998), however, found a conditional relationship, where the relationship was indirect below some threshold and positive thereafter. Bende-Nabende and Ford (1998) found an indirect relationship between

human capital and growth in Taiwan. We expect a direct relationship between the two variables.

*Other variables:* We included the inflation rate as a measure of overall economic stability of the country. We expect an indirect relation between inflation and economic growth. The summary statistics of the included variables are presented in Table 5.

**Table 5: Summary statistics of included variables**

Variables	Mean	Standard deviation	Minimum	Maximum
Open = $(100 \cdot (\text{Imports} + \text{Exports}) / \text{GDP})$	27.2175	19.7925	0.3779	62.1814
Inflation rate = Infl	22.0394	18.8368	3.4	72.9
Govt. size (Govt consumption/GDP)	0.1539	0.2825	-0.307	0.9017
Human Capital = $(\text{Sec.} + \text{Tertiary enrol} / \text{Popn})$	4.2741	1.4283	2.024	7.1383
Infrastructure = $(\text{Electric power consumption} / \text{Popn})$	7.494	2.171	2.6527	10.6308
Return on investment = (long-time US interest rate)	7.0896	3.1768	1.670	16.390
Non-oil GDP	6.373	2.0207	0.6179	10.1659
Political risk = (coups)	0.2727	0.4522	0	1
FDI $(100 \cdot \text{RFDI} / \text{GDP})$	3.5989	7.4036	-1.9247	32.0255
FDI <sub>oil</sub> $(100 \cdot \text{FDI}_{\text{oil}} / \text{GDP})$	2.8554	3.0432	-0.2529	11.9265
FDI <sub>tracom</sub> $(100 \cdot \text{FDI}_{\text{tracom}} / \text{GDP})$	0.0926	0.0593	0.0071	0.2651
FDI <sub>manufac</sub> $(100 \cdot \text{FDI}_{\text{manufac}} / \text{GDP})$	2.5518	1.3241	0.2429	5.7649
LnGDP (log of GDP)	11.3730	0.2224	10.9001	11.7739

Source: Data analysis 2005.

## The model

Although the evidence for the impact of FDI on economic growth is far from conclusive, there seems to be some consensus as to the core determinants of growth. Two main hypotheses on the influence of FDI on economic growth have been identified: the modernization hypothesis and the dependency hypothesis.

The modernization hypothesis posits that FDI promotes economic growth by providing external capital and through growth, spreads the benefits throughout the economy. It is the presence, rather than the origin, of investment that is considered important. FDI is seen as the “engine of growth” in developing countries. On the other hand, the dependency school of thought insists that there is deleterious long-term impact of FDI on growth. In the short run, any increase in FDI enables higher investment and consumption and thus relates directly and immediately to economic growth. But, as FDI accumulates and foreign project takes hold, there will be adverse effects on the rest of the economy that reduce economic growth. This is due to the intervening mechanisms of dependency, in particular “decapitalization” and “disarticulation” (O’Hearn, 1990).

Political, social and cultural factors also play a crucial role in the growth performance of a country. Borensztein et al. (1998) posit a direct effect of FDI on growth in countries with a threshold level of human capital. Akinlo (2004) noted that export, labour, and human capital are positively related to economic growth in Nigeria. Others, for example Asiedu (2003), considered inflation as proxy for political instability as determinant of economic growth.

The foregoing suggests that a general empirical model of FDI on Nigeria's economic growth can be put as (following after the augmented growth model of MRW):

$$GDPPCAP = F(\text{Lag}(GDP), FDI, OPEN, HUMCAP, POLRSK, GOVSIZE, INFL, ROI, INFRAC) \quad (4)$$

where,

GDPPCAP	=	real gross domestic product per capita (in log form)
FDI	=	foreign direct investment defined as (FDI/GDP*100)
OPEN	=	openness of the economy (total trade – GDP ratio)
HUMCAP	=	the level of human capital (share of secondary school and university enrolment in the population)
POLRSK	=	political risk measured by number of coups d'etat (dummy variable)
GOVSIZE	=	government consumption as a ratio of GDP
INFL	=	the rate of inflation
ROI	=	return on investment (long-term US interest rate)
INFRAC	=	infrastructure development (per capita electricity consumption)

Specifically, given the time series nature of the data available (Table 5), the postulated long-run model is

$$\begin{aligned} \text{LNGDPPERCAP} = & \alpha + \text{GDPPERCAP}_{t-1} + \beta_1 FDI + \beta_2 \Delta OPEN + \beta_3 \Delta HUMCAP + \\ & \beta_4 \Delta ROI + \beta_5 \Delta GOVSIZE + \beta_6 \Delta INFRAC + \beta_7 INFL + \beta_8 POLRSK + \varepsilon_t \end{aligned} \quad (5)$$

where  $\Delta$  is difference and  $\varepsilon_t$  is the stochastic disturbance term.

The neoclassical aggregate production function (Ram, 1985) provides the basis for the postulated equation. New growth theory proponents (Levine and Renelt, 1992) give core explanatory variables for economic growth as investment, population and human capital. Investment (both foreign and domestic) as a percentage of GDP and export and import as percentages of GDP are expected to rise as countries pass through higher stages of development and experience faster growth rates. It is documented that trade, especially exports, may increase competition, permit the realization of comparative advantage, enable countries to purchase goods from abroad and provide opportunities to gain access to new technology as well as managerial skills.

The ratio of secondary school and tertiary institution enrolment proxies human capital in the host economy. Barro and Lee (1994) used something similar and found it to be significantly correlated with growth. Akinlo (2004) also used the same proxy for human capital in Nigeria and found positive correlation.

On the basis of the discussion above, the expected sign for the coefficients of *FDI* is positive according to the modernization hypothesis but uncertain according to the

dependency hypothesis. The coefficients of *OPEN*, *HUMCAP*, *GOVSIZE*, *INFRAC*, and *ROI* are expected to be positive. However, the expected sign on *INFL* is uncertain depending on the way it is managed in the economy. Similarly, the expected sign on *POLRSK* is negative.

Previous studies (Akinlo, 2004; Adelegan, 2000) entered FDI into their regression. It is widely known, however, that the bulk of the FDI is invested in "the extractive industry", in which case these models actually assessed the role of the natural resource – oil – on economic growth. In this study we went a step further to disaggregate the FDI into its major components and assessed its effect on the growth of the economy. Thus the FDI was disaggregated into manufacturing, trade and communication and oil. No matter the level of disaggregation, we expect a positive relationship between the FDI components and economic growth. These aggregates were then entered into the regression equation to examine their influence on growth.

Given the likely simultaneity between FDI and growth, the two-stage least squares (2SLS) method of estimation was used, and the results obtained compared with those of the OLS. Finding reliable instruments was problematic. Lensink and Morrissey (2001) submit that it is difficult to find instruments that are good at predicting the variable (*FDI*) and yet are not determinants of the dependent variable. We eventually used a lagged value of *FDI* and policy changes as instruments for *FDI* while lagged value of *FDI* was used for growth. Given the short annual sample we opted for the augmented growth model. Further, we examined the effects of the explanatory variables on the non-oil GDP to establish their relationship.

## Data and estimation

To achieve the stated objectives of the study, annual time series data of the variables were used. The data were sourced from the Central Bank of Nigeria's *Statistical Bulletin*, the International Monetary Fund's *International Financial Statistics* (CD-ROM 2005) and the World Bank's *World Development Indicators 2004*.

The period covered by the study is 1970–2002. The choice of the period is informed by the developments in the Nigerian economy. The official change in policy direction towards FDI was in 1988 with the establishment of the IDCC.

In order for the impact of FDI on economic growth to be sustainable, we checked the time series statistics of the included variables. The data were tested for unit root (non-stationarity) by using the Augmented Dickey–Fuller (ADF) and the Phillip–Peron test. The results, presented in Table 6, reveal that seven of the variables are integrated of order  $I(1)$ , while five are stationary at level.



Table 6: Nigeria unit root tests for stationarity, 1970–2002

Variable	ADF level	PP level	ADF 1st diff	PP 1st diff	Critical Value 5% ADF	Critical Value 5% PP	Critical Value 1% ADF	Critical Value 1% PP
<i>Unit root tests for stationarity with constant and time trend</i>								
RGDP	-1.111662	-1.65363	-3.4304***	-5.4705*	-3.5670	-3.5614	-4.2826	-4.2826
GDPPERCAP	-4.505478*	-5.46543*	-9.86280*	-10.14685*	-3.5614	-2.9591	-3.6576	-4.2826
NFDI	-4.015671**	-5.36834*	-6.1995*	-11.0511*	-3.5614	-2.9627	-3.6661	-4.2826
RFDI	-4.02182**	-5.34513*	-6.0708*	-10.9127*	-3.5670	-3.5731	-4.3226	-4.3082
POLRSK	-3.6079**	-5.84325*	-6.0663*	-13.2148*	-3.5670	-3.5562	-4.2949	-4.2712
GOVSIZE	-1.8693	-5.44575*	-7.5684*	-17.3858*	-3.5670	-3.5562	-4.2949	-4.2712
INFL	-3.32187**	-2.89014	-5.3996*	-5.5012*	-3.5670	-3.5562	-4.2949	-4.2712
ROI (USLTrate)	-3.30476***	-2.10133	-4.9575*	-4.2993*	-3.5670	-3.5614	-4.2949	-4.2826
HUMCAP	-150977	-1.86775	-2.8563	-3.6177*	-3.5118	-3.5614	-4.3942	-4.2826
OPENNESS	-2.70333	-2.58048	-3.6479**	-3.2079	-3.5118	-3.5562	-4.2949	-4.4691
INFRA	-0.9608	-1.26134	-5.9267*	-4.7766*	-3.5614	-3.5614	-4.2826	-4.2826
NON-OILGDP	-3.59206**	-3.85890*	-6.0260*	-10.56174*	-3.5670	-3.5562	-4.2826	-4.2826
<i>Unit root tests for stationarity with constant only</i>								
RGDP	-0.17216	-0.86430	-3.3784**	-5.5005*	-2.9591	-2.9591	-3.6576	-3.6496
GDPPERCAP	-4.70743*	-5.68151*	-9.70082*	-9.97697*	-2.9591	-2.9591	-3.6576	-3.6576
NFDI	-3.28366**	-4.73830*	-6.2136*	-11.2753*	-2.9627	-2.9591	-3.6661	-3.6576
RFDI	-3.43318**	-4.86663*	-6.1941*	-11.1604*	-2.9665	-2.9665	-3.6752	-3.6576
POLRSK	-3.7185*	-5.95609*	-6.0930*	-13.0423*	-2.9627	-2.9591	-3.6576	-3.6576
GOVSIZE	-2.1173	-3.15484**	-7.1216*	-14.8153*	-2.9591	-2.9591	-3.6576	-3.6576
INFL	-3.2788**	-2.90175	-5.4160*	-5.5940*	-2.9591	-2.9591	-3.6576	-3.6576
ROI (USLTrate)	-2.42378	-1.75017	-4.8287*	-4.2021*	-2.9591	-2.9558	-3.6576	-3.6496
HUMCAP	-0.82309	-0.63451	-2.5163	-3.6880*	-2.9591	-2.9558	-3.7343	-3.6496
OPENNESS	-1.1256	-1.20811	-3.5124*	-4.7100*	-2.9591	-2.9558	-3.6576	-3.6496
INFRA	-2.4329	-2.55422	-4.6452*	-7.7050*	-2.9591	-2.9558	-3.6576	-3.6496
NON-OILGDP	-3.08016*	-4.01670*	-5.7628*	-8.3921*	-2.9591	-2.9558	-3.8067	-3.6496

Note: \*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

Source: Data analysis (2005).

## 6. Results and discussions

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Our results may be grouped into three general categories – the determinants of FDI into Nigeria, the impact of FDI on economic growth, and the association between FDI and non-oil GDP. These are presented in turn, with a summary tying the ends.

### Determinants of FDI

Since it is a known fact that for FDI to grow an economy it must first have been attracted into the country, we examine the determinants of FDI into Nigeria. An understanding of the underlying determinants of FDI is important for rational policy formulation and implementation. We use the OLS regression techniques to estimate the relationship between the various exogenous variables and FDI in Nigeria, because of the nature of the data available.

The results obtained from the regression are presented in Table 7. The overall performance of the model is satisfactory, with the coefficients correctly signed and five of the explanatory variables statistically significant. We acknowledge the possibility of a linear relationship between *Human Capital* and *Infrastructure*, which could induce multi-collinearity, so we entered the variables differently. Columns 2 and 3 of the table present the results of the exercise of entering the variables differently.

The result in the table is largely consistent with our expectations. The results show that *Openness* is negatively related to FDI inflow. This is contrary to the results of Asiedu (2001), who worked on determinants of FDI at the regional level (Africa). However, it agrees with Anyanwu (1998), who gave the reason for such observation as the antithetical SAP policy measures in place in Nigeria that led to the capital flight experience. Odozi (1995), however, blamed the observed capital flight in Nigeria on the unfavourable trade policy that was in place before the SAP. Hence we could deduce from the results that the trade policy in Nigeria was not FDI friendly. Interestingly, Obwona (2001) also found an inverse relation between trade balance and FDI in Uganda.

*Infrastructure* and *Returns on Investment* both had a positive relation with FDI. This is expected and consistent with results of previous studies, suggesting that both of these factors will encourage FDI inflows. However, the return on investment coefficient is not statistically significant.



**Table 7: Regression results: Determinants of FDI**  
 Dependent variable: 100\*(FDI/GDP)

Variables	Coefficients		
	(1)	(2)	(3)
Intercept	-2.2376	-3.5340	3.0992
Open	-0.0557* (0.0249)	-0.0386* (0.0239)	-0.0583* (0.0255)
Infra	0.4869*** (0.3230)	0.6063* (0.3289)	-
Returns	0.0438 (0.1270)	-0.0412 (0.1221)	0.0128 (0.1286)
Infl	0.0296*** (0.0175)	0.0358* (0.0178)	0.0388* (0.0168)
Govsize	0.6142 (3.4385)	4.2689*** (2.8404)	-3.3564*** (2.2676)
Polrsk (no. of Coups)	-0.1283 (0.6362)	0.0417 (0.6550)	-0.1608 (0.6525)
GDPPERCAP	0.6649*** (0.4455)	0.1602 (0.3530)	0.6424*** (0.4569)
Hum Cap	-0.9226** (0.5288)	- (0.5303)	-1.0914*
$\overline{R^2}$	0.484	0.441	0.4572
No of observations	33	33	33
F-ratio	4.642*	4.489*	4.73*
D.W. Stat.	2.2900	2.1005	2.251

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

Figures in parentheses are the standard error.

Source: Data analysis 2005.

The positive relationship of the inflation coefficient suggests that the development within the macro economy is such that it encourages FDI inflows. This indicates that the various policy initiatives aimed at encouraging investors is yielding the expected results in Nigeria. Among these are the abrogation of the indigenization policy and the promulgation of the NIPC decree.

The positive relationship of the *Government size* variable is suggestive of the fact that the nature of government consumption is such as to encourage FDI inflows in terms of provision of infrastructure and enabling environment.

*Political instability* has a negative relation with FDI as expected, but the coefficient is not significant. It was not significant in some previous studies, either, for example Asiedu (2001). The suggested plausible reason for this observation is that the FDI inflows to Nigeria (being mainly in the petroleum sector) are so profitable that the return after

adjusting for risk is quite substantial, hence the investors could not be discouraged by political instability.

GDP growth has a positive relation with FDI ratio and is statistically significant. Hence as the economy improves, FDI is attracted. *Human Capital* has a negative and statistically significant relationship with FDI. This is not expected. However, it had been posited that efficiency seeking FDI will tend to locate in those destinations that are able to supply skilled and disciplined labour force. Fung et al. (2000) report that labour quality is an important determinant of FDI, but raw labour costs were insignificant determinants of FDI. The result obtained in this study is largely consistent and agrees with the findings of Otepola (2002), who in a work on FDI and economic growth in Nigeria reported a low level of existing human capital. This result indicates that the human capital (labour) available in Nigeria is not FDI inducing.

The main submission from this result is that the determinants of FDI could be region and country specific, in that what obtains in one country may not hold in other countries. For example, while openness to trade has attracted FDI inflow into some countries like Bolivia (Flexner, 2000), it has not achieved the same results in Nigeria. In addition, the domestic macroeconomic policies in Nigeria encourage FDI inflows, while the existing human capital does not.

## FDI and growth

We recognize the possibility of endogeneity in the relationship between the independent variables and GDP growth. The option was to use the instrumental variables (IV) estimating procedure to address this problem. As noted previously, however, the problem with this method has to do with the fact that it is difficult to find instruments that are both good at predicting the variable of interest (FDI) yet are not determinants of the dependent variable, coupled with the fact that IV estimates tend not to be robust to choice of instruments.

The importance of domestic policies in attracting and retaining FDI in host countries has been emphasized, especially in Africa (Loots, 2000; Morriset, 2000). In line with the global trend, the Nigerian government put in place a variety of policy measures captured here via indicators constructed as a dummy variable (*dompoldummy*). The dummy variables were then tested for fitness as instruments. The result of the test of the instruments is tabulated in Table 8. We eventually used the variable (*dompoldummy*), lagged FDI and lagged GDP as instruments. These instruments were utilized in running the 2SLS regression.

We also run the OLS regression for the model and the result obtained is presented in Tables 9 and 10. The results in the tables show that the 2SLS coefficients are generally comparable with those of the OLS. The 2SLS results are presented in Tables 11 and 12. Tables 9 and 11 present the results of the variables on the whole economy, while Tables 10 and 12 presents the results of the regression on the non-oil sector of the economy. Columns 1 and 2 of the tables present the results of the regression of FDI on the economy, while columns 3 and 4 present the results of the decomposed FDI on the economy.

**Table 8: Instruments estimates for FDI****Dependent variable:  $100*(FDI/GDP)$** 

Variables	Coefficients
Intercept	155.076
Coups	-2.0521* (1.2811)
Dompoldumy	2.6742* (1.2935)
Sap	-2.0650 (3.7558)
Policydummy	-12.715* (3.604)
Lnrgdp	-11.840* (8.108)
Lngdppcap	-31.602* (3.304)
$\overline{R^2}$	0.822
No of observations	33
F-ratio	25.63*
RMSE	3.085

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

Figures in parentheses are the standard error.

Source: Data analysis 2005.

**Table 9: OLS regression results – FDI and growth****Dependent variable:  $\ln GDP_{percap}$** 

Variable	1 (Total)	2 (Total)	3 (Total)	4 (Total)
Intercept	-0.0210	-0.1413	4.5615	3.4558
D(Open)	0.0077* (0.0033)	0.0092* (0.0033)	0.0006 (0.0010)	0.0010 (0.0011)
Infl	-0.0069* (0.0018)	-0.0076* (0.0017)	-0.0014* (0.0006)	-0.0009*** (0.0005)
D(Gov. Size)	0.0689 (0.1181)	0.0861 (0.1176)	0.1497* (0.0500)	0.1693* (0.0443)
D(HumCap)	0.0583 (0.0490)	-	0.0389 (0.0398)	-
D(Infrac)	-	0.0301(0.0304)	-	0.0264* (0.0008)
FDI	0.0033 (0.0174)	0.0015(0.0171)	-	-
FDloil			0.0101*** (0.0063)	0.0102** (0.0050)
FDltracom			1.6914** (0.7525)	1.4838* (0.6484)
FDlmanfac			-0.1216* (0.0373)	-0.1110* (0.0329)
D(ROI)	0.0011 (0.0099)	0.0024 (0.0102)	0.0052 (0.0050)	0.0026 (0.0095)
Polrsk	0.0171 (0.0619)	0.0197 (0.0595)	0.0572*** (0.0345)	0.0568* (0.0296)
Lag ( $\ln GDP$ )	1.0048* (0.0188)	1.0164* (0.0195)	0.6147* (0.0936)	0.7091* (0.0723)
No of Obs	33	33	33	33
$\overline{R^2}$	0.993	0.993	0.936	0.950
F ratio	616.321*	632.706*	46.581*	60.384*
D-W stat	2.121	2.166	2.262	1.730

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

D(X) means the difference of the variable X.

Figures in parentheses are the standard error.

Source: Data analysis 2005.

**Table 10: OLS regression results – FDI and non-oil growth**Dependent variable: *InnonoilGDPpercap*

Variable	1 (Non-oil)	2 (Non-oil)	3 (Non-oil)	4 (Non-oil)
Intercept	6.4114	6.9035	-0.0880	-0.5609
D(Open)	0.0093 (0.0427)	0.0039 (0.0430)	0.0546*** (0.0392)	0.0699* (0.0398)
Infl	-0.0314 (0.0245)	-0.0324*** (0.0243)	-0.0068 (0.0214)	-0.0026 (0.0216)
D(Gov. Size)	2.0524 (1.5191)	1.8049 (1.4718)	-0.2125 (1.5504)	-0.6032 (1.5794)
D(Hum Cap)	0.8222 (1.0744)	-	1.2528 (0.9732)	-
D(Infrac)	-	0.3678 (0.3562)	-	0.0194 (0.3451)
FDI	0.01277 (0.2130)	0.0952 (0.2114)	-	-
FDIloil	-	-	0.1263 (0.1398)	0.1229 (0.1453)
FDItracom	-	-	44.3515* (12.9829)	45.6998* (13.4685)
FDImanfac	-	-	0.0001* (0.0000)	0.0001* (0.0000)
D(ROI)	0.0091 (0.1182)	0.0178 (0.1176)	0.0528 (0.1317)	0.0842 (0.1378)
Polrsk	1.6637* (0.8099)	2.0177* (0.7719)	1.6193* (0.9427)	1.2734** (0.9410)
Lag (lnGDP)	0.0929 (0.1848)	0.0919 (0.1829)	-0.0684 (0.1710)	-0.0436 (0.1765)
No of Obs	33	33	33	33
$R^2$	0.190	0.173	0.376	0.327
F ratio	1.910***	1.814***	2.871*	2.508*
D-W Stat	2.087	2.108	1.680	1.752

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

D(X) means the difference of the variable X.

Figures in parentheses are the standard error.

Source: Data analysis 2005.

**Table 11: 2SLS regression results – FDI and growth**Dependent variable: *lnGDPpercap*

Variable	1 (Total)	2 (Total)	3 (Total)	4 (Total)
Intercept	4.1372	4.1594	4.2016	4.4593
Open	0.0016* (0.0007)	0.0017*** (0.0010)	0.0012*** (0.0008)	0.0007 (0.0010)
Infl	-0.0004*** (0.0002)	-0.0004 (0.0003)	-0.0004 (0.0003)	-0.0007*** (0.0004)
Gov. Size	0.1782* (0.0555)	0.2232* (0.0968)	0.1399* (0.0389)	0.1607* (0.0547)
HumCap	0.0098 (0.0164)	-	0.0065 (0.0116)	-
Infrac	-	0.0049 (0.0078)	-	0.0121* (0.0068)
FDI	0.0021 (0.0030)	0.0023 (0.0032)	-	-
FDIloil	-	-	0.0012 (0.0053)	0.0043 (0.0075)
FDItracom	-	-	0.6163* (0.3421)	0.7264** (0.4158)
FDImanfac	-	-	-0.0272** (0.161)	-0.0576* (0.0225)
ROI (USltintrate)	0.0033 (0.0059)	0.0050 (0.0038)	0.0119 (0.0222)	0.0013 (0.0039)
Polrsk (coups)	0.0220*** (0.0129)	0.0245* (0.0137)	0.0160*** (0.0115)	0.0263* (0.0143)
Lag (lnGDP)	0.1551* (0.0664)	0.1370* (0.0488)	0.1436* (0.0621)	0.0853*** (0.0504)
No of Obs	33	33	33	33
$R^2$	0.911	0.910	0.924	0.915
F ratio	54.43*	94.63*	201.22*	111.87*
RMSE	0.031	0.031	0.031	0.038

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels, respectively.

Figures in parentheses are the standard error.

Source: Data analysis 2005.

**Table 12: 2SLS regression results – FDI and non-oil growth**Dependent variable: *InnonoilGDPpercap*

Variable	1 (Non-oil)	2 (Non-oil)	3 (Non-Oil)	4 (Non-Oil)
Intercept	-32.1399	-36.4841	-6.7895	-6.5278
Open	0.0103* (0.0044)	0.0143* (0.0047)	0.0060*** (0.0041)	0.0060 (0.0055)
Infl	-0.0008 (0.0021)	-0.0000 (0.0027)	-0.0000 (0.0014)	-0.0002 (0.0017)
Gov. Size	-0.5803* (0.3026)	-0.7949* (0.3117)	0.3183*** (0.2451)	0.3723*** (0.2248)
HumCap	0.1008 (0.0856)	-	0.0224 (0.0786)	-
Infrac	-	0.0232 (0.0495)	-	0.0101 (0.0416)
FDI	0.0396 (0.0319)	0.0248 (0.0403)	-	-
FDI <sub>oil</sub>	-	-	0.0429*** (0.0258)	0.0505*** (0.0339)
FDI <sub>tracom</sub>	-	-	4.7871* (2.3985)	5.2153* (2.3297)
FDI <sub>manfac</sub>	-	-	0.1754 (0.1396)	0.1429 (0.1290)
ROI (USIntrate)	0.2750*** (0.1866)	0.3452*** (0.2230)	0.1744 (0.1376)	0.0249*** (0.0173)
Polrsk (coups)	0.0697 (0.1170)	0.0778 (0.1411)	0.0154 (0.0823)	0.0253 (0.0963)
Lag (lnGDP)	7.1846* (1.8314)	8.1194* (1.2702)	1.7824* (0.4027)	1.7324* (0.3354)
No of Obs	33	33	33	33
$R^2$	0.928	0.892	0.972	0.972
F ratio	89.46*	28.41*	132.51*	151.92*
RMSE	0.286	0.351	0.187	0.185

\*, \*\* and \*\*\* indicate significance at 1%, 5% and 10% levels.

Figures in parentheses are the standard errors.

Source: Data analysis 2005.

The results show that most of the independent variables had the expected relations with GDP growth and five of the nine variables entered are statistically significant. The period of analysis is from 1970 to 2002, although the policy shift in favour of FDI came up in 1988 with the establishment of the Industrial Development Coordinating Committee. We could not examine the effect of this policy due to the small sample size.

*Openness* has a positive and significant relationship with economic growth. This is expected and is consistent with previous results such as those of Asiedu (2001). Li and Liu (2004) and Flexner (2000) also report a positive relationship between trade and economic growth in China and Bolivia, respectively. This result stresses the importance of variations in export and import prices on per capita GDP growth. These variations are a major source of economic instability in less developed countries, especially in Africa, where the bulk of export earnings is from primary commodities.

The negative and significant relationship between inflation and growth suggests that the macroeconomic policies in place encourage growth. We had expected that ability to control inflation should reduce investment risks and enhance FDI and growth.

*Government size* has a positive and significant relationship with growth, suggesting that government expenditure encourages economic growth via investments; in other words, there is a "crowding in" effect of government expenditure. This is contrary to the submission of Akinlo (2004) but in line with the findings of Adelegan (2000).

The *Infrastructure* and *Human capital* variables were entered separately because of the likely relationship between the two that could induce multicollinearity. Both had positive but not significant relationships with growth. The implication of this result is that the quality of human capital in Nigeria is low. For any significant contribution of human capital to economic growth there is a need for conscious development in a new

and innovative way (Otepola 2002). Table 13 shows that the mean of the measure of human capital obtained for Nigeria is very low relative to that of the sub-Saharan African countries.

**Table 13: Differences between Nigeria and sub-Saharan Africa (mean of selected variables)**

Variable	SSA*	Nigeria**
Openness to trade	66.997	27.22
Returns on investment	-7.178	-7.72
Government size	13.042	0.15
Inflation rate	145.403	22.04
Political risk	0.015	0.27
Human capital	56.449	4.27

Source: \*Asiedu (2005) and \*\*author's computation (2006).

One of the conditions for location of efficiency-seeking FDI is that there is an ample supply of skilled and disciplined labour. Obwona (2004) notes that although labour appears to be cheap in Africa, there is nonetheless an overall shortage of skilled labour on the continent. The lack of middle or senior level entrepreneurial experience has increased the existing skill gap, and many foreign companies have resorted to employment of expatriate managers (Bhinda et al., 1999). This is the situation in Nigeria, where foreign companies and many conglomerates prefer expatriates as their senior managers. The companies only hire Nigerians on the condition of retraining and mostly this training is done outside the country.

The non significance of the *Infrastructure* variable indicates the need for constructive attention to be given to provision of needed infrastructure, especially power generation and distribution, to enhance economic growth.

From these results, FDI has a positive but not significant relationship with economic growth. However, the relationships of the separate components of FDI (oil and communications) are both positive and significant. Some previous studies have reported similar results. Obwona (2004) notes that the consensus now appears to be that FDI is positively correlated with growth. Dees (1998) reports positive influence of FDI on China's economic growth. The results obtained generally support this view. The implication of the finding is that the inflow of FDI into the economy has positive overall effect on the economy.

The *Returns to investment* variable has an expected positive relationship with growth, suggesting that the returns obtainable in Nigeria compare favourably with those obtained elsewhere and will grow as the economy improves.

The *Political risk* dummy shows a positive and significant relationship with growth, which is contrary to expectations. However, the reason often adduced for such an observation is that private returns to investments obtainable from investments in the oil industry, after adjusting for risk, encourage investors. This argument finds an advocate in Asiedu (2001) and is supported by the findings in this study.

The FDI variable was then broken into its major components as *OilFDI*, *TraComFDI* and *ManFDI* and their relationship with economic growth examined. The result of the model is presented in columns 3 and 4 of tables 9 and 11. The result is generally similar to that of the basic equation and 7 out of the 11 variables are statistically significant.



Of the components of FDI entered, *OilFDI* and *TraComFDI* have positive relationships with growth, while *ManFDI* has a negative relationship. The result for the *OilFDI* confirms the vital importance of the resource to the nation's economic growth and thereby lends credence to earlier findings that FDI is growth inducing. The reported massive inflow of FDI into the communication sector as a result of the deregulation programme could be responsible for the positive and significant relationship of communication-related FDI (*TraComFDI*) with growth. This result is expected, given the vital importance of communication to business facilitation and overall economic development.

The negative relationship of manufacturing FDI (*ManFDI*) is contrary to expectations. However, this could be because of the relatively small contribution of the manufacturing sector to the overall economy. It could also suggest that the industrial structure in the country is not complementary and therefore not trade enhancing. The export structure of the economy has been on the decline in the recent past as is shown in Table 14.

The return on investment variable had a positive relationship with growth, suggesting that the return on capital invested in some sectors (especially oil and communications) is competitive enough to encourage growth. Obwona (2004) observed that Africa as a continent offers the highest rate of returns on investment. However, investors may be sector sensitive when making their investment decisions.

The inflation variable used as proxy for macroeconomic instability has a negative relationship with growth as expected. This suggests that an unstable macroeconomic environment discourages growth. Borensztein et al. (1998) and Li and Liu (2004) also reported an indirect relationship between inflation and growth.

In summary, we could deduce that the level of human capital in Nigeria is low and may not absorb the technology being transferred via foreign investment especially in the oil industry. Further, the need for official policy on trade relations especially as concerns the price of export commodities is highlighted by the significance of the openness variable. Third, while the FDI may not have a significant impact on the whole economy, the impact of the components of FDI is quite significant and growth inducing; in fact, the potential of the communication FDI to contribute to growth is in multiples of that of oil FDI. However, the manufacturing FDI is not growth inducing, suggesting the existence of an unconducive business climate for manufacturers. Actually, the capacity utilization of the manufacturing sector for most of the period under consideration was less than 40%.

## FDI and Non-Oil GDP

**I**n order to assess more closely the impact of FDI on the economy, especially the non-oil sector, we relate the independent variables with the non-oil GDP. Table 14 summarizes the actual and percentage shares of oil and non-oil export earnings in Nigeria. As shown in the table, the contribution of the non-oil sector has been very small over time, with earnings averaging 2.52% percent of total exports during the period 1993–2002.

Table 14: Actual and percentage share of oil and non-oil export earnings in Nigeria

Year	Earnings (US\$ million)		Percentage share	
	Oil	Non-oil	Oil	Non-oil
1993	9695.18	226.36	97.7	2.3
1994	9127.34	234.25	97.4	2.6
1995	42181.22	1050.3	97.6	2.4
1996	58490.95	1060.82	98.2	2.8
1997	55138.67	1326.21	97.8	2.3
1998	3264.5	1549.35	95.5	4.5
1999	12169.74	202.87	98.4	1.6
2000	18814.29	243.13	98.7	1.3
2001	17624.35	250.17	98.6	1.4
2002	14773.62	785.5	94.9	5.1

Source: CBN *Statistical Bulletin* (various issues).

Tables 10 and 12 present the result of the model with the non-oil GDP as dependent variable. The model is generally poorer than obtained for the whole economy as only five variables are statistically significant, although most of the variables had the expected relationship with the dependent variable.

*Openness* is both positive and significant, thus implying that it encourages the growth of the non-oil sector. Similarly, *Returns on investment* has a positive and significant relationship with non-oil sector growth. This suggests that the returns obtainable in the sector may be comparable to those of the rest of the economy and they are growth enhancing. *Human capital* has a positive but not significant relationship with the non-oil growth.

The *FDI* variable also has a positive but not significant relationship with non-oil GDP. This is similar to the results obtained for the whole economy and a confirmation of the fact that although the FDI has potential to encourage the growth of the non-oil sector it has not been doing so significantly. This is possible due to the non integration of both the oil and non-oil sectors of the economy. The oil industry had been run as an enclave until recent efforts of the government to deregulate the downstream sector of the industry in order to facilitate its integration into the mainstream of the economy. This corroborates the submission by Akinlo (2004) that the oil industry is not integrated into the economy.

The relationship of *Government size* to non-oil GDP is both positive and significant, suggesting that government consumption induces the growth of the non-oil sector. This result is better appreciated when considered along with that of *Infrastructure*, which also has a positive relationship with non-oil GDP. The results indicate that the provision of overhead capital for the non-oil sector needs to be carefully planned to ensure overall growth of the economy. However, the variables are not significant.

The negative but not significant relationship of *Inflation* variable is suggestive of the fact that the macroeconomic environment is not favourable to the non-oil sector of the economy. This is very important in view of the importance of the non-oil sector to the vitality and overall sustainability of the economy.

The result obtained when the FDI variable is broken into its major components and related with non-oil GDP is presented in columns 3 and 4 of the tables. From the results,



*Openness* and *Returns* are positively and significantly related to non-oil GDP. This is in line with expectations. More trade is expected to grow the economy.

All the three components of FDI entered have direct relationships with non-oil GDP. However, only the communication FDI has a consistent significant relationship with non-oil GDP in both models. This confirms the potential of communication FDI in transforming the non-oil sector of the nation's economy if given the needed attention. This result is borne out by the huge amount invested in the communication sector since the commissioning of the Global System for Mobile Communications (GSM). The liberalization of the communication sector is a step in the right direction with a great potential to contribute to the growth of the economy. The positive but not significant relationship of oil FDI to non-oil GDP reinforces the argument that the extractive FDI bears little linkage with the non-oil sector.

Manufacturing FDI is positively related to non-oil sector growth, but the result is not robust. This indicates the deplorable state of the manufacturing sector of the economy and the need for urgent attention by policy makers to turn the tide. For example, the textile industry is choked heavily by the mass layoff of workers owing to low capacity utilization and inability to compete with imported goods especially from China. The industrial capacity utilization was just 29% in 1999.

## 7. Summary and conclusion

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The objectives of this study were threefold: to explore empirically the relationship between FDI and GDP growth in Nigeria; to examine the effects of manufacturing FDI on economic growth in Nigeria; and to ascertain the long-run sustainability of the FDI-induced growth process. Data were collected from secondary sources analysed with the aim of achieving the stated objectives. From the findings of the study the following can be inferred:

- The main determinants of FDI in Nigeria are market size (proxied by GDP), stable macroeconomic policies and a level of human capital that is tolerable by investors.
- FDI contributes positively to Nigeria's economic growth. The FDI in the communication sector currently has the highest potential to grow the economy, especially the non-oil sector. The FDI in the manufacturing sector has a negative relationship with economic growth, suggesting that the business climate is not healthy enough for the manufacturing sector to thrive and contribute to positive economic growth.
- The not significant relationship of human capital to overall economic growth suggests that there is a shortage of skilled labour in the country.
- Similarly, the return to capital variable has positive relation with overall growth, but has a significant relationship with the non-oil sector's growth. This suggests that the returns in the non-oil sector are encouraging and comparable to the rest of the economy and political risk does not restrain overall economic growth.
- Government consumption is large enough to induce overall economic growth, in both the oil and the non-oil sectors. While inflation was significant and positive for the whole economy, it is not a significant macro-variable for the non-oil sector.
- Finally, while trade did not bear a robust relationship to the non-oil sector, it had a positive and significant relationship with the growth of the whole economy. In other words, trade is very important to growth of the oil sector since the oil industry is producing mainly for export.

From these findings we can assert that:

- FDI in Nigeria induces the nation's economic growth. Although the overall effect of FDI on the whole economy may not be significant, the components of FDI positively affect economic growth and therefore FDI needs to be encouraged.
- Since communication FDI has the highest potential for contributing growth, it needs to be properly channelled and integrated into the mainstream of the economy. Communication FDI's potential contribution is several times that of oil FDI.

- Oil FDI needs to be made to contribute positively to the growth of the whole economy and especially to the non-oil sector. The privatization of the downstream sector of the oil industry, which was commenced by the government recently, needs to continue so as to integrate the oil sector into the economy and thereby enhance its potential to contribute to economic growth.
- The negative contribution of the manufacturing sector is a reflection of Nigeria's poor business climate. There is need to consciously improve the business environment to enable manufacturing to contribute positively to growth.
- One way to improve the business environment is by conscious provision of necessary infrastructure, which will lower the costs of doing business in Nigeria. The privatization of the National Electric Power Authority (NEPA) now known as Power Holding Company may be a step in the right direction if there is an improvement in the service provided. This will enable the manufacturing FDI to contribute significantly to economic growth.
- A related issue on the business environment is the importance of consciously curbing corruption. Agencies established to fight corruption such as the Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC) should be seen to do their job to convince both foreigners and nationals that Nigeria is a safe place to invest in.
- There may be need to further liberalize the power sector by encouraging independent power supply providers. These should be encouraged to complement the efforts of the Power Holding Company, whose inability is apparent in constant power failures and attendant high costs of providing electricity.
- Greater policy sensitivity towards the openness of the economy is needed so that the traded commodities will be beneficial to the economy as a whole.
- There is need for guided training and integration of the human resources of the country to enable them to contribute positively to economic growth wherever they find themselves employed either with foreign or with indigenous firms and whichever sector they are in. The need for training high quality personnel in the country cannot be overemphasized.

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